

Airfield Design And Terminology



CWO 3 Greg Lopez



This Presentation is:
UNCLASSIFIED



Purpose

- Familiarize the WTI with the various runway configurations
- Familiarize the WTI with runway markings
- Familiarize the WTI with Airfield Terminology

History



- From the establishment of early air mail routes flown by the military in 1918
- Military helped to establish routes and air facilities across the country
- Many large airports throughout the world were designed and constructed by the military



Airside Facilities

- What we would call the airfield
- Parking aprons, cargo/passenger loading and unloading areas
- Landing surfaces or runways, taxiways
- Local airspace



Runways



- There are many different airport runway configurations.
- The FAA includes 22 different layouts in their advisory circular's.



Single Runway

- Simplest of configurations
- Most common
- Can accommodate up to 99 predominately light twin-engine and single engine piston aircraft operations per hour
- The capacity under IFR is reduced to 42-53

Bogue Field, NC





Camp Pendleton





Parallel Runways

- Close, fewer than 3500' between runways
- Intermediate, 3500' to 4500' between runways
- Far, 5000' or more between runways
- Dual lane, two-close parallel runways separated by 5,000' or more





Open “V” Runways

- Diverge from different directions, but do not intersect
- Simultaneous use when there are little or no winds
- May increase flight tempo
 - Wind dependant







Intersecting Runways

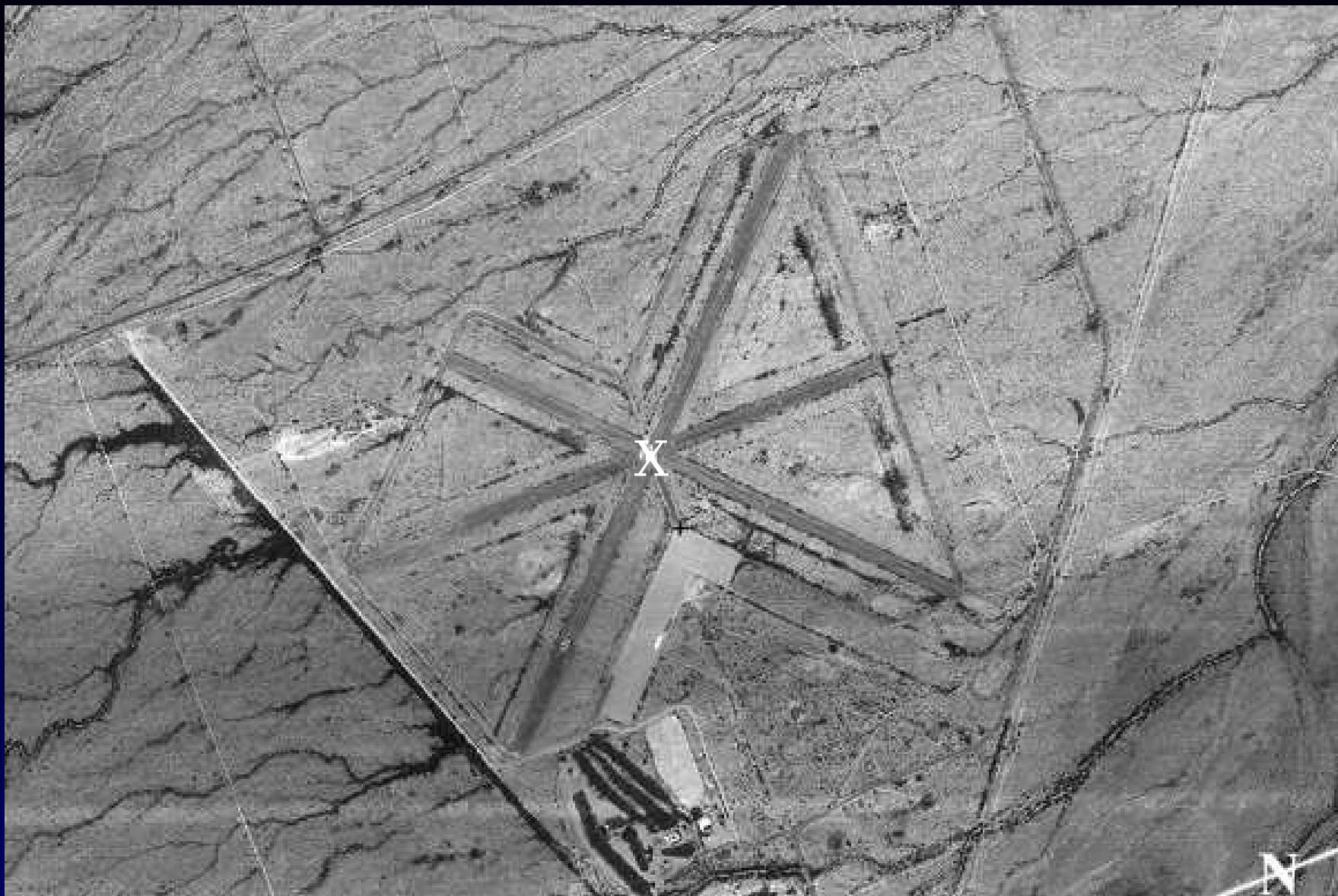
- Crossing runways
- Seasonal wind changes
- Similar to Open “V” runway operations

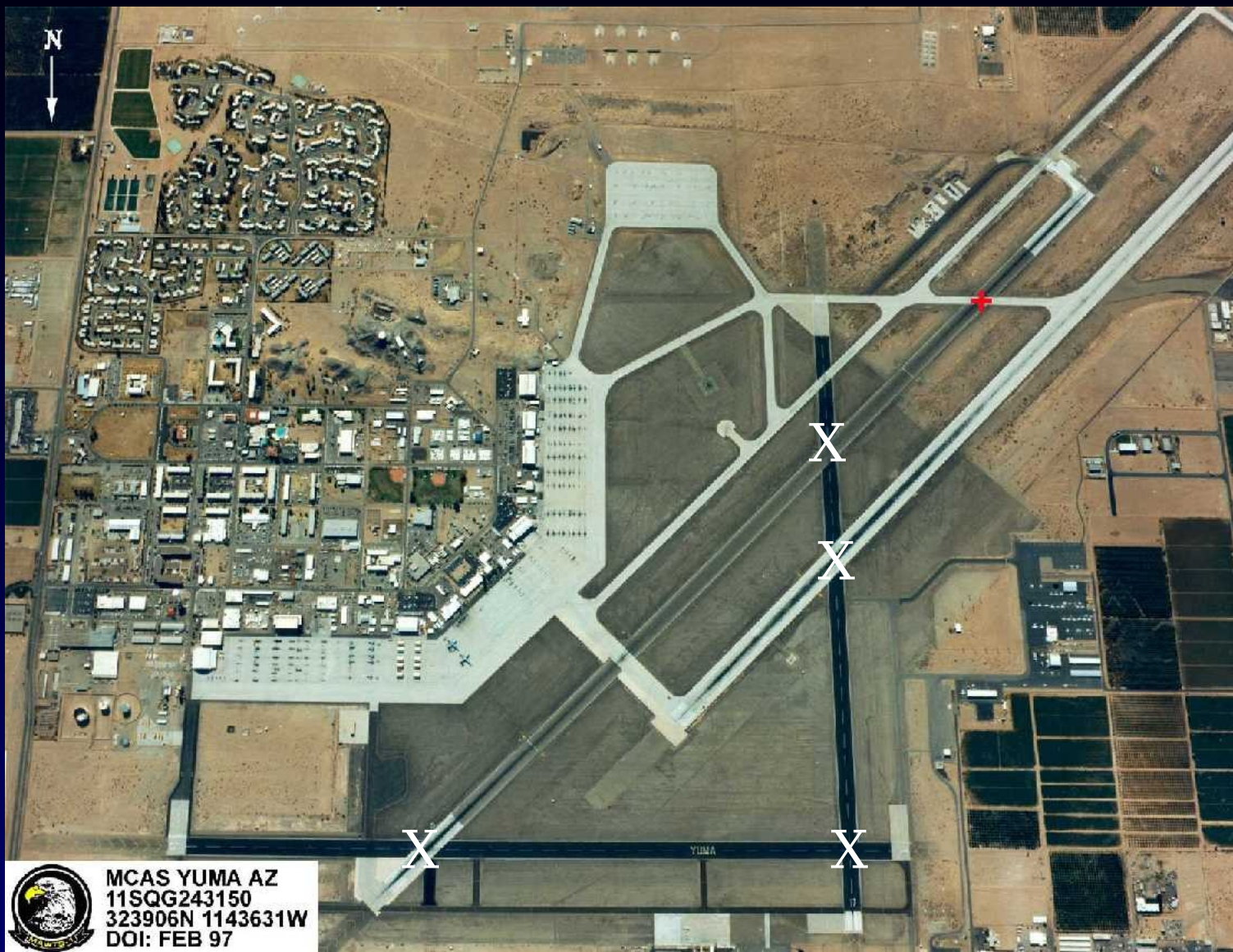


CHINA LAKE AIRFIELD

DOI: 8 SEP

N354100 W1174200
11SMK366488





MCAS YUMA AZ
11SQG243150
323906N 1143631W
DOI: FEB 97



Contingency Runways

- In a contingency environment, Forward Operating Bases, Airfields and Runways take on a whole new meaning.
- We train to use anything suitable to accomplish the mission.















Runway Classifications

- Visual
- Non-Precision
- Precision



Visual Runway

- Used by aircraft using visual approach procedures
- No straight-in instrument approach
- No instrument designation



Non-precision Instrument Runway

- Instrument approach procedures using navigation facilities with only horizontal guidance
- Straight-in non-precision instrument approach



Precision Instrument Runway

- Runway with both vertical and horizontal navigational guidance
- Instrument Landing System (ILS)
- Precision Approach Radar (PAR)
 - TPN-22
 - DAMES
 - PAPI/FLOLS

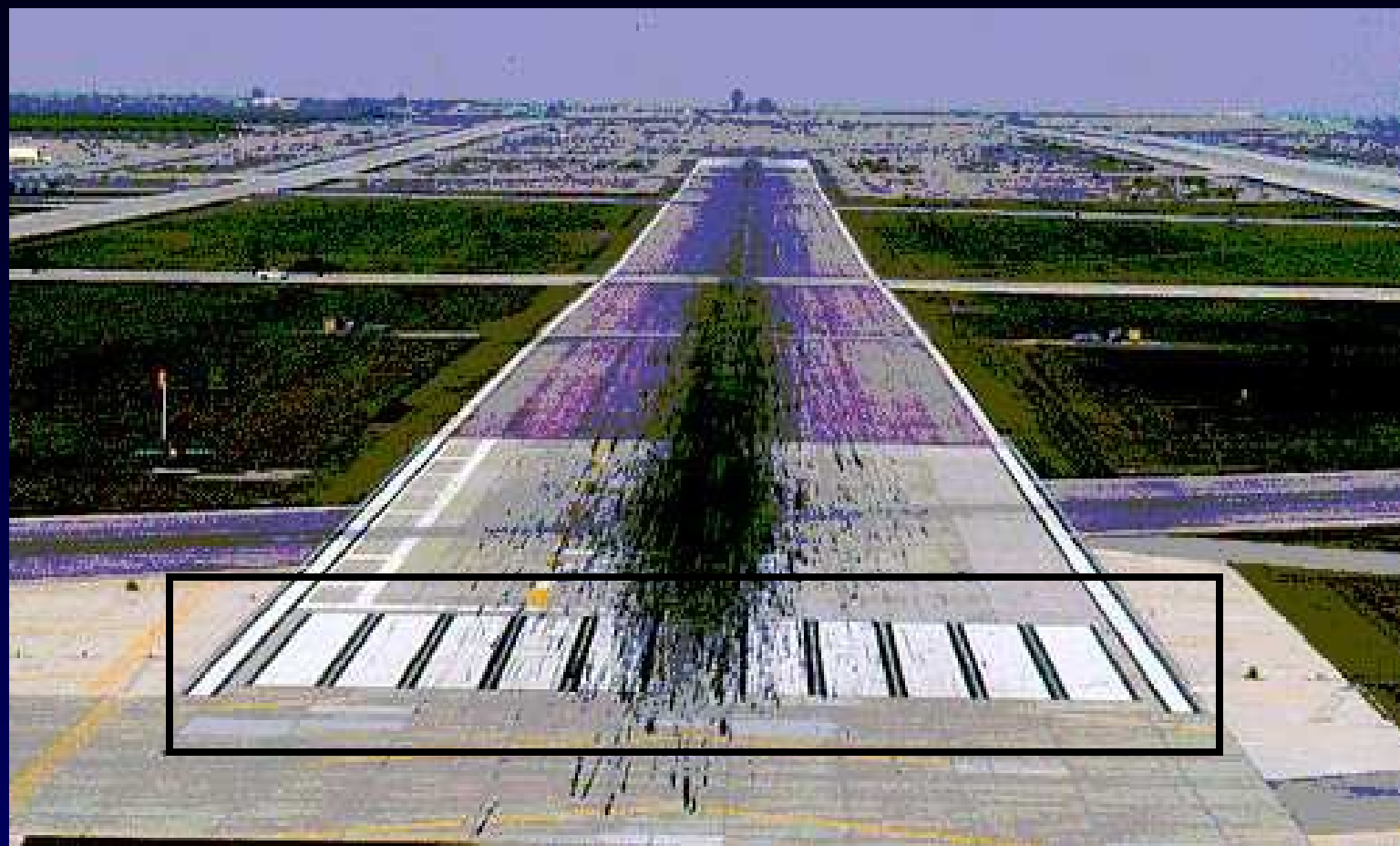


Runway Markings



Threshold Marking

- The markings that identify the beginning of the runway
- A series of striped lines





Centerlines

- Provides line-up
- Painted lines
- Centerline lights
- Important for aircraft making an arrested landing





Designators

- Provide runway magnetic heading within 5 degrees
- Are based on 360 degrees, the last digit is left off (ie. Rwy 30 is actually 300 degrees, rwy 12 is actually 120 degrees)



Designators

- A single runway has two rwy designators for each end of the rwy.
- These designators will always be a 180 degrees out from each other (ie. Rwy 30 will have an opposite rwy heading of 12).



Test Your Math

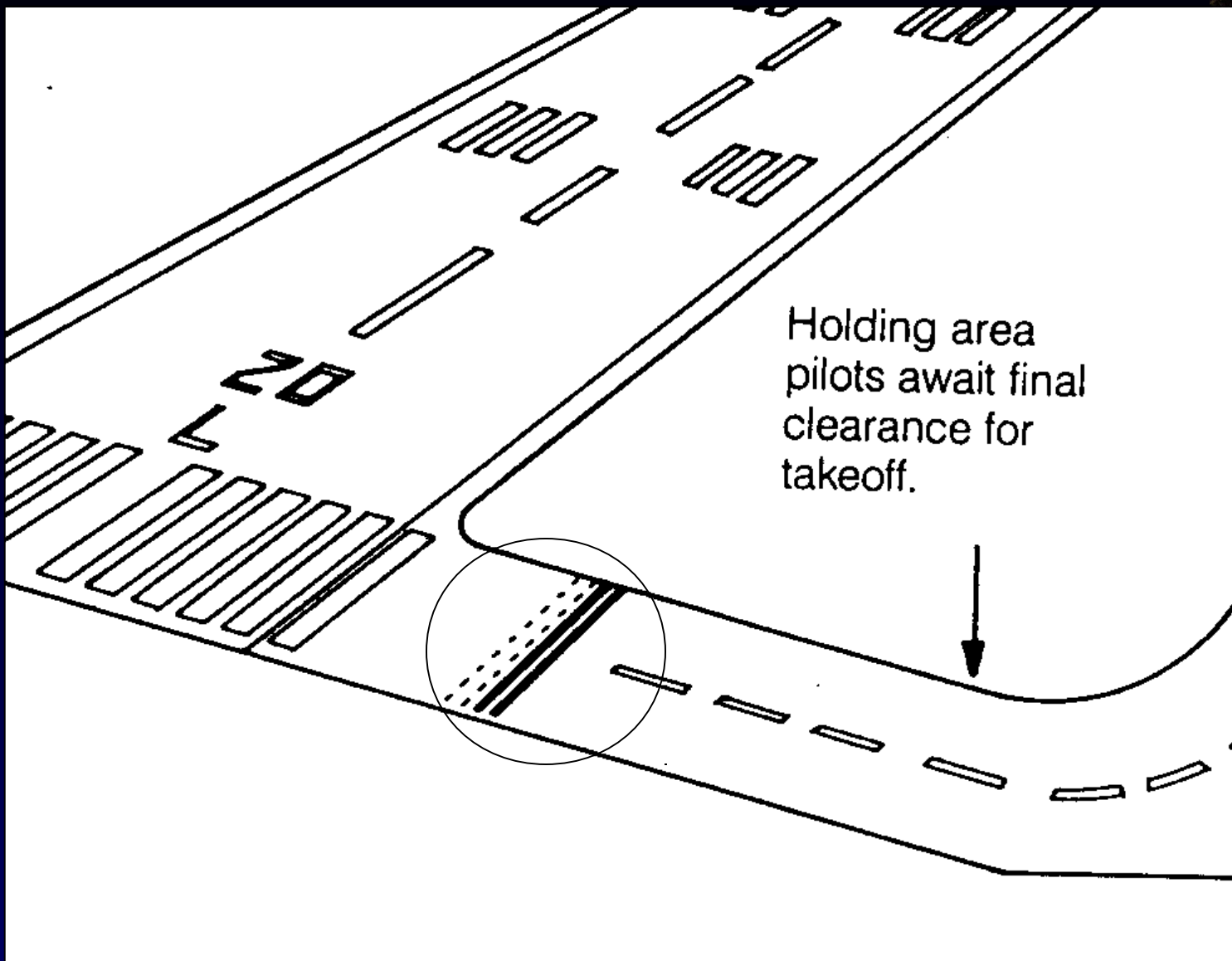
"if 09 is your approach?"





Hold Short Lines

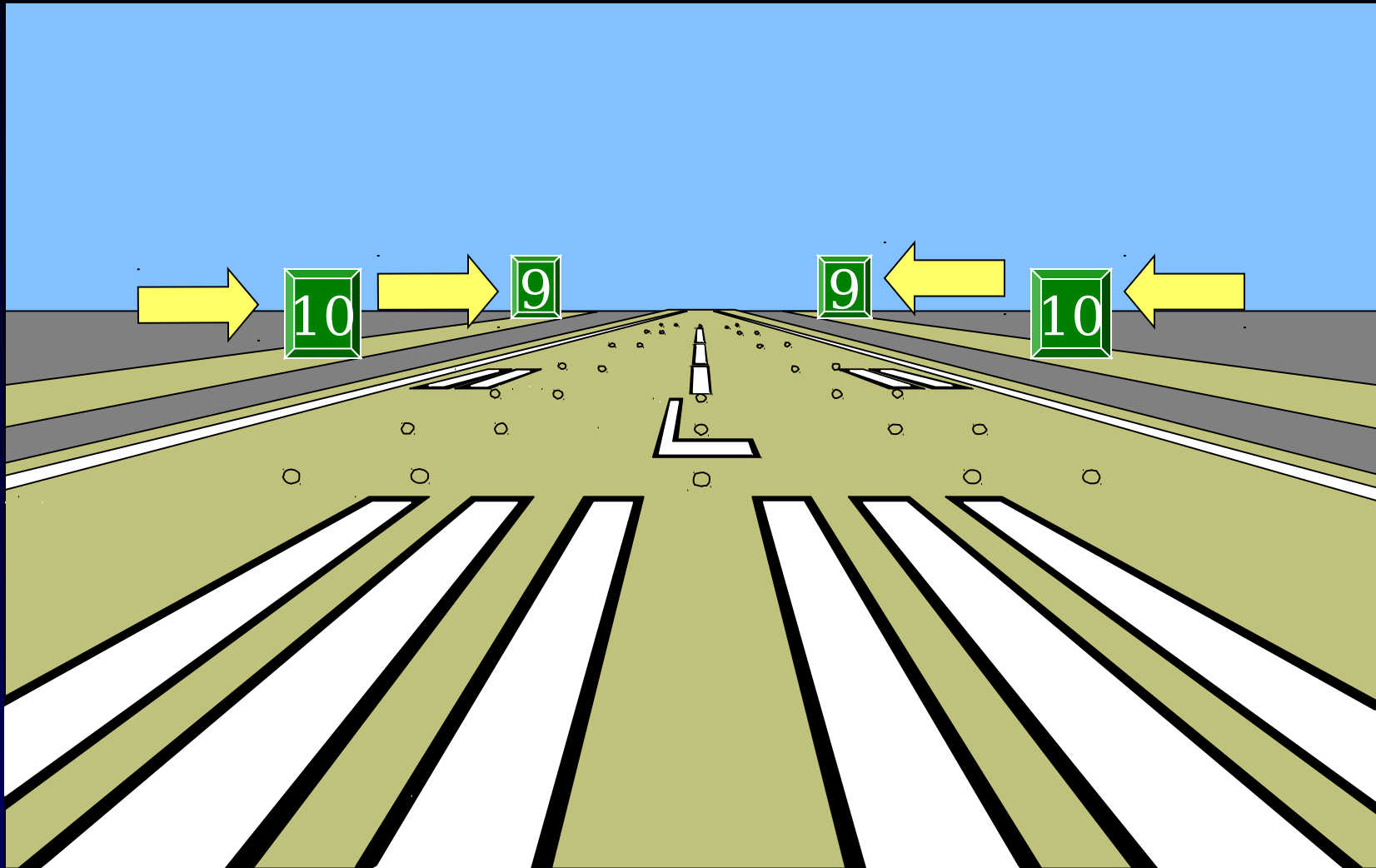
- Hold aircraft at strategic locations
- Measured distances back from the rwy, are used to prevent mishaps. These distances are based on the largest aircraft to use that field.

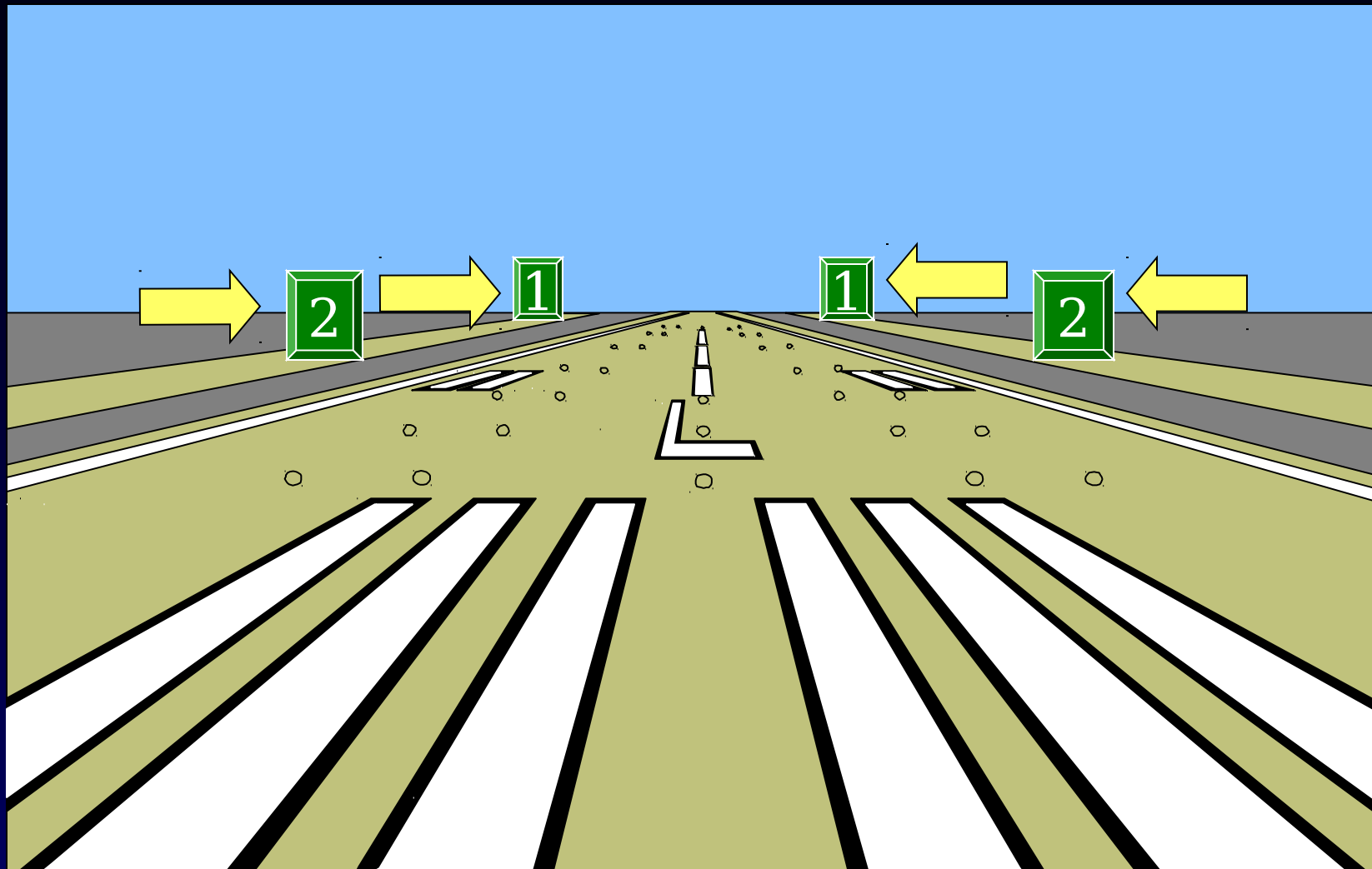




Distance Markers

- Provides distance remaining on landing surface
- Marked in feet or meters
- If you have a 10000 ft rwy one side of the sign will read 10 and the other side will read 1

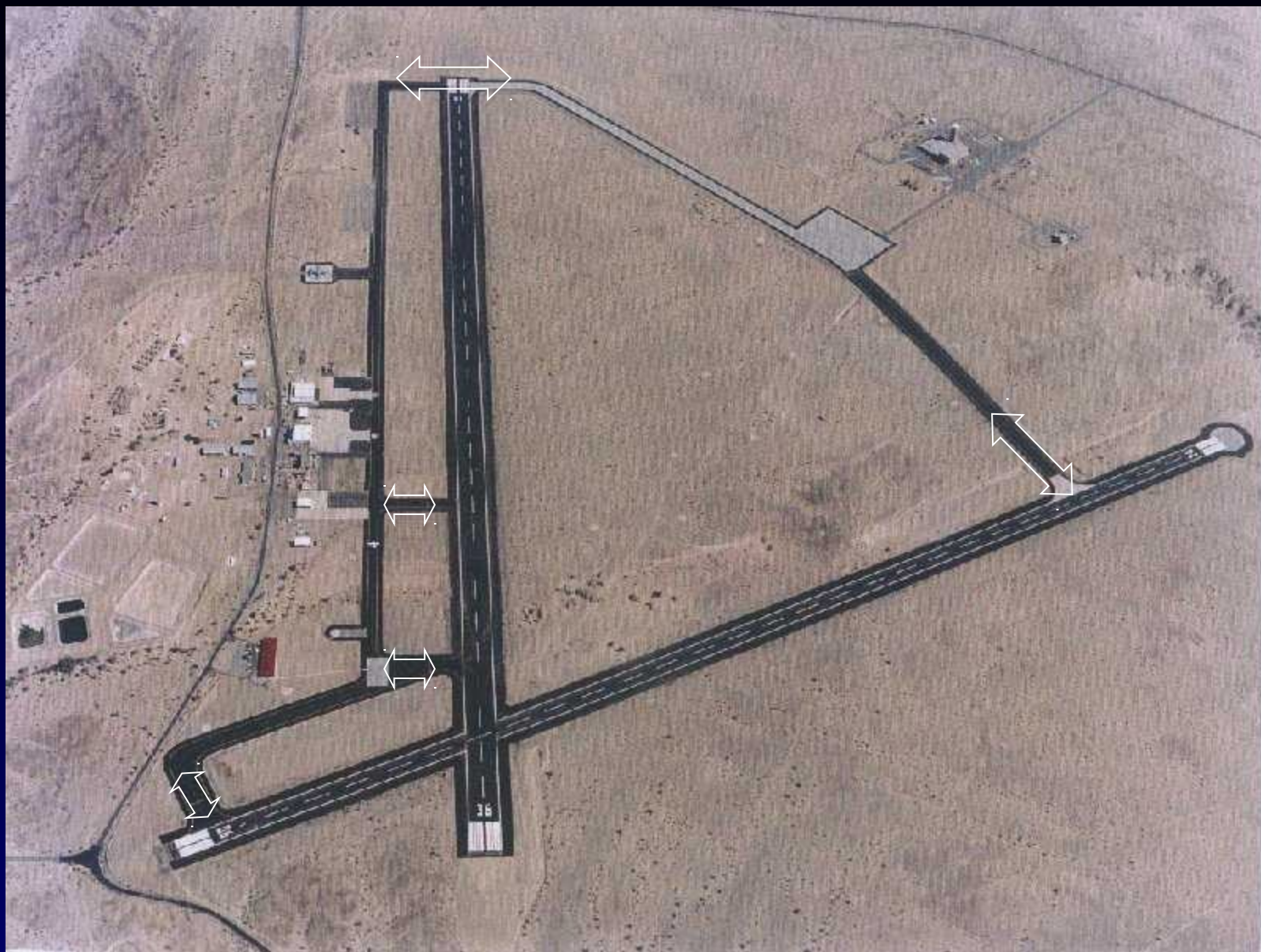






Taxiways

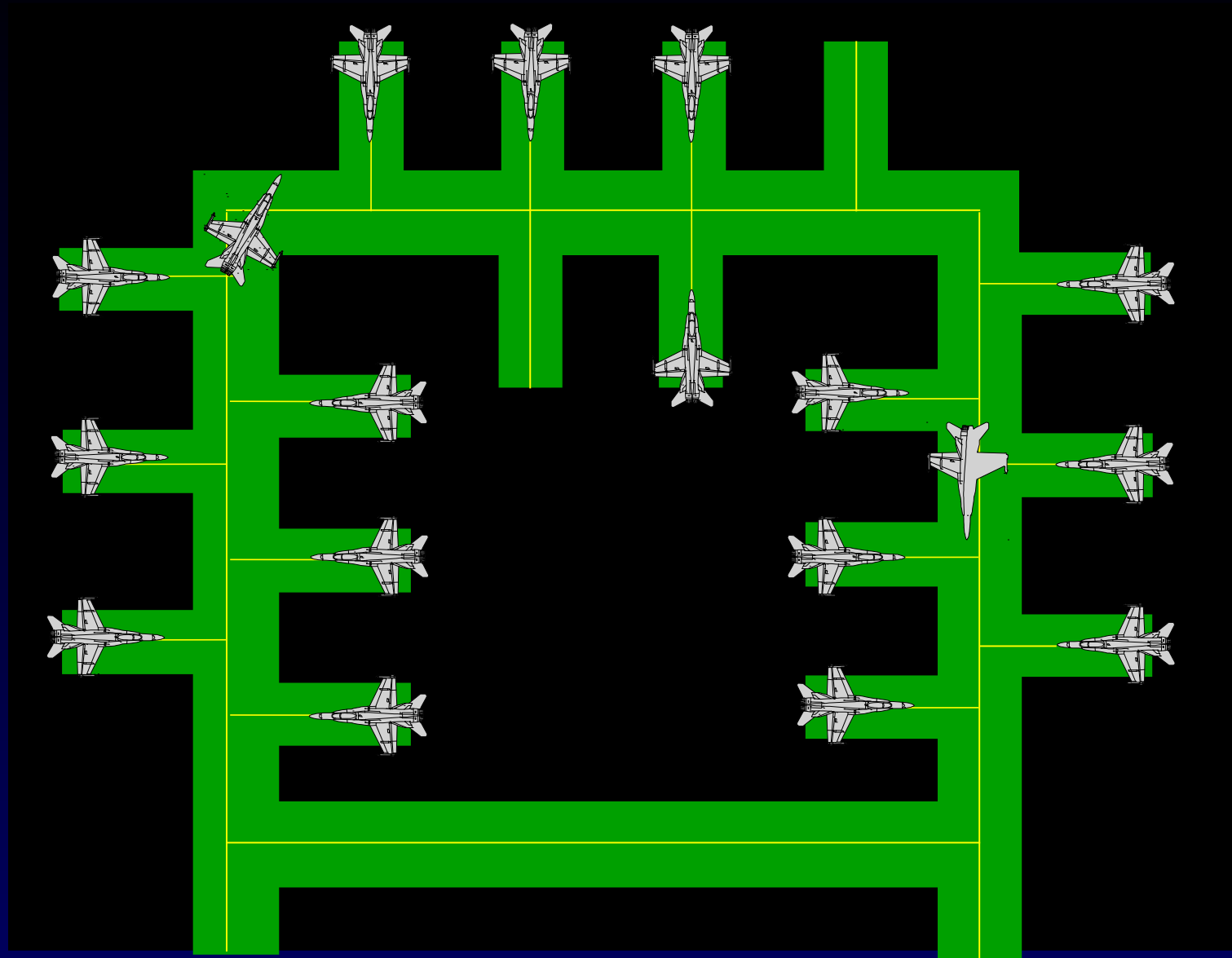
- Exit and entry points to the landing surface
- Parallel taxiway for contingency planning can be used as an alternate runway
- Normally marked with yellow paint





Parking Areas

- Biggest concern for the MAGTF aircraft using an existing airfield
 - Clearance between aircraft
 - Ordnance spacing requirements
 - Forward firing ordnance









Summary

- Runway Configurations
- Runway Classifications
- Runway Marking
- Taxiway and Parking



Questions??